

TYN1225 25A SCR

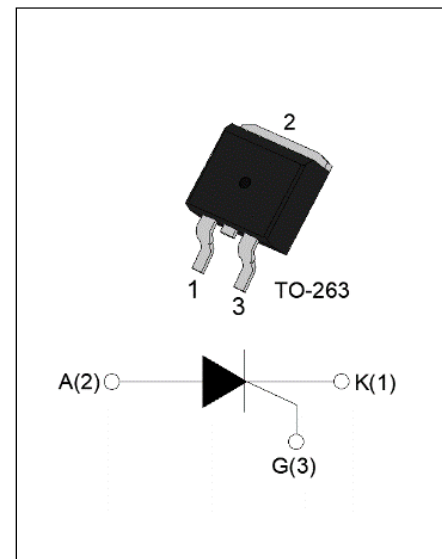
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DESCRIPTION

With high ability to withstand the shock loading of large current, TYN1225 SCR provides high dV/dt rate with strong resistance to electromagnetic interference. It is especially recommended for use on solid state relay, motorcycle, power charger, T-tools etc. Package TO-263 is RoHS compliant.

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	25	A
V_{DRM}/V_{RRM}	1200	V
I_{GT}	≤ 40	mA


ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{stg}	-40-150	$^{\circ}C$
Operating junction temperature range	T_j	-40-125	$^{\circ}C$
Repetitive peak off-state voltage ($T_j=25^{\circ}C$)	V_{DRM}	1200	V
Repetitive peak reverse voltage ($T_j=25^{\circ}C$)	V_{RRM}	1200	V
Average on-state current ($T_c \leq 88^{\circ}C$)	$I_{T(AV)}$	16	A
RMS on-state current ($T_c \leq 88^{\circ}C$)	$I_{T(RMS)}$	25	A
Non repetitive surge peak on-state current ($t_p=10ms, T_j=25^{\circ}C$)	I_{TSM}	320	A
Non repetitive surge peak on-state current ($t_p=8.3ms, T_j=25^{\circ}C$)		352	
I^2t value for fusing ($t_p=10ms, T_j=25^{\circ}C$)	I^2t	512	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}, f=100Hz, T_j=125^{\circ}C$)	di/dt	200	$A/\mu s$
Peak gate current ($t_p=20\mu s, T_j=125^{\circ}C$)	I_{GM}	5	A
Average gate power dissipation ($T_j=125^{\circ}C$)	$P_{G(AV)}$	1	W
Peak gate power	P_{GM}	20	W
Peak pulse voltage ($T_j=25^{\circ}C$; non-repetitive, off-state)	V_{pp}	1	kV

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CHARACTERISTICS ($T_j=25^\circ\text{C}$ unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12\text{V } R_L=33\Omega$	-	-	40	mA
V_{GT}		-	-	1	V
V_{GD}	$V_D=V_{DRM} T_j=125^\circ\text{C } R_L=3.3\text{k}\Omega$	0.2	-	-	V
I_L	$I_G=1.2I_{GT}$	-	-	90	mA
I_H	$I_T=500\text{mA}$	-	-	80	mA
dV/dt	$V_D=800\text{V}$ Gate Open $T_j=125^\circ\text{C}$	1000	-	-	V/ μs
t_{on}	$I_G=50\text{mA } I_A=500\text{mA } I_R=50\text{mA}$ $T_j=25^\circ\text{C}$	-	5	-	μs
t_{off}		-	70	-	

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=50\text{A } t_p=380\mu\text{s}$	$T_j=25^\circ\text{C}$	1.55	V
V_{TO}	Threshold voltage	$T_j=125^\circ\text{C}$	0.74	V
R_D	Dynamic resistance	$T_j=125^\circ\text{C}$	19	m Ω
I_{DRM}	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^\circ\text{C}$	7	μA
I_{RRM}		$T_j=125^\circ\text{C}$	2	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (DC)	1.1	$^\circ\text{C/W}$
$R_{th(j-a)}$	junction to ambient (DC, in free air, $S=1\text{cm}^2$)	47	$^\circ\text{C/W}$

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FIG.1: Maximum power dissipation versus RMS on-state current

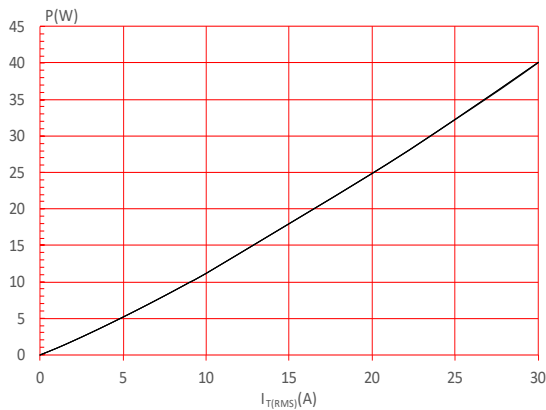


FIG.2: RMS on-state current versus case temperature

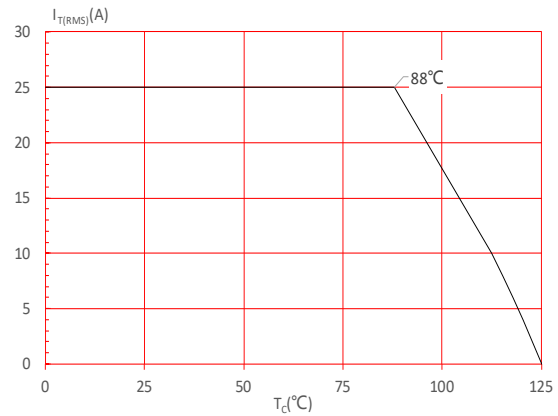


FIG.3: Surge peak on-state current versus number of cycles

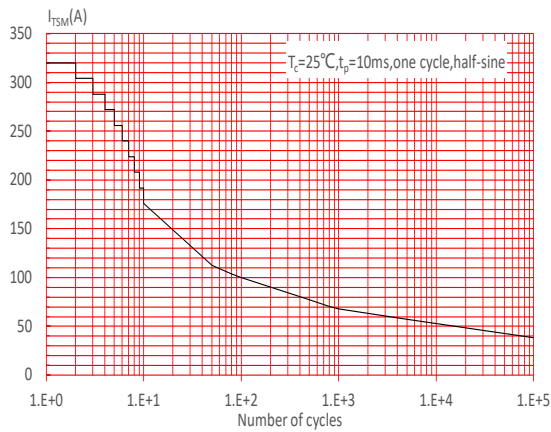


FIG.4: On-state characteristics

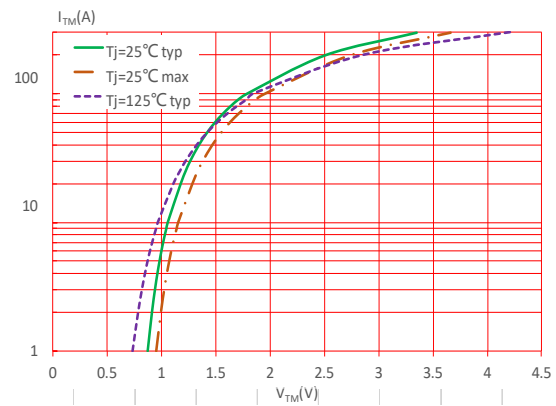


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t ($di/dt < 200\text{A}/\mu\text{s}$)

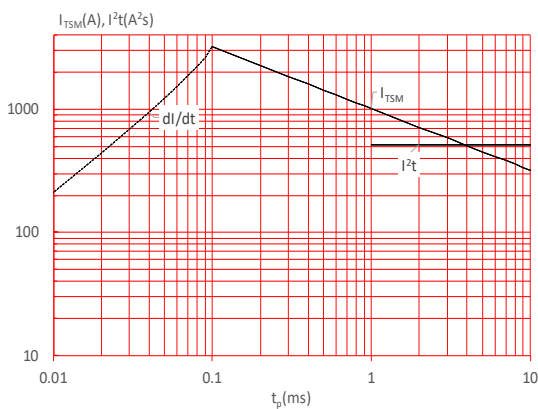
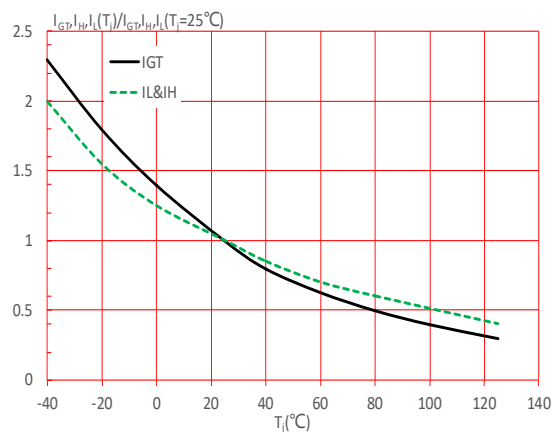


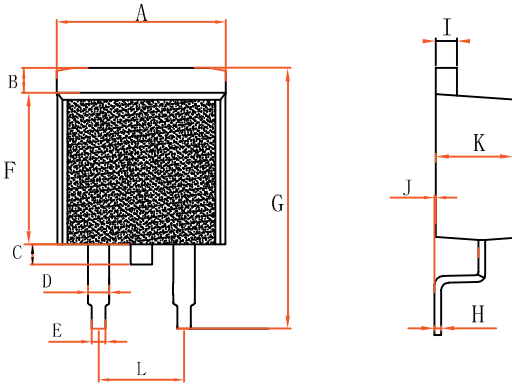
FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



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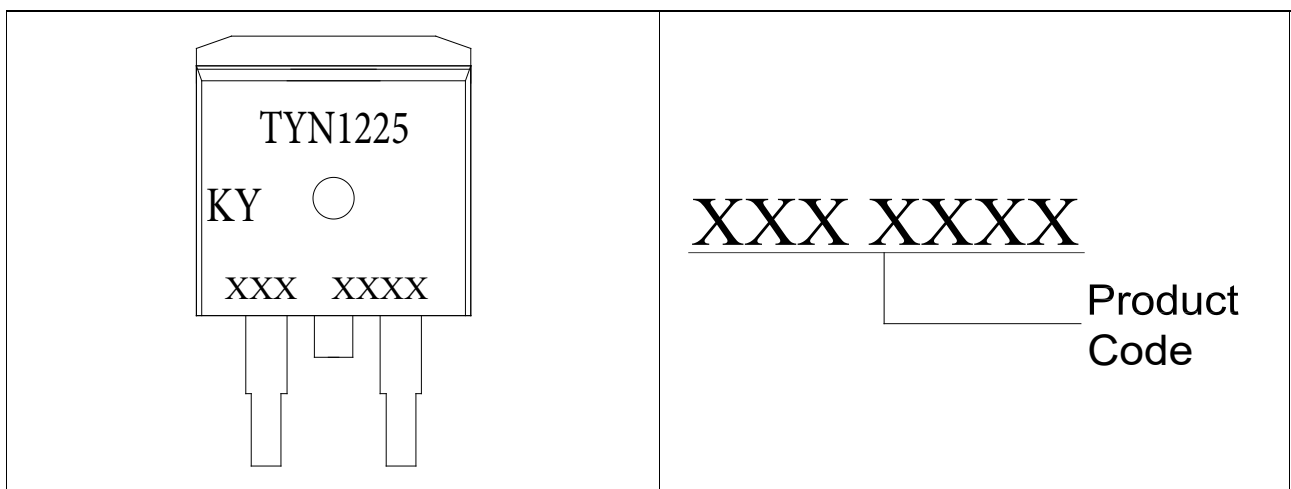
PACKAGE MECHANICAL DATA



T0-263

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.7		10.4	0.381		0.409
B	1.31		1.62	0.051		0.063
C	0.65		1.22	0.025		0.048
D	1.15		1.36	0.045		0.053
E	0.62		0.95	0.024		0.037
F	8.75		9.32	0.344		0.366
G	14.75		15.8	0.58		0.622
H	0.32		0.48	0.012		0.018
I	1.18		1.36	0.046		0.053
J	0		0.15	0		0.005
K	4.38		4.86	0.172		0.191
L	4.85		5.23	0.19		0.205

MARKING



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PACKAGE	OUTLINE	REEL (PCS)	PER CARTON (PCS)	TAPE & REEL
TO-263	TAPING	800	4,000	13 inch

Document Revision History

Date	Revision	Changes
Jun.22, 2025	A.2.0	Last updated

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